

**DISCONTINUED
PRODUCT**

S I T E M O N I T O R I N G



RCM8CE & RCM8DO

Remote Contact Module

INSTALLATION & USER MANUAL



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NOTE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Section 1: INTRODUCTION

*Contact Liebert Environmental
Service & Support at
800-543-2778 regarding
installation, operation, or
warranty issues.*

The Liebert RCM8CE and RCM8DO Remote Contact Monitors annunciate alarms by monitoring eight contact-closure points, each point wired directly to the RCM8.

When the RCM8 receives an alarm signal, a piezoelectric siren sounds and the LED illuminates for the corresponding contact point (1 through 8). A text interface to a video terminal or PC emulating a terminal session is used to configure the operating parameters, and can remain connected to receive user-programmed alarms messages.

In addition to monitoring alarm signals from locally-connected equipment, the RCM8 can also dial out via modem to: remote computer; another RCM8 acting as a repeater; numeric pager; or alphanumeric pager. The RCM8DO features 8 additional contact-closure outputs that mimic the state of the alarm LEDs.

Up to four RCM8 units can be connected in a local, multi-point monitoring configuration. This gives added flexibility to monitor up to 32 contact points. The RCM8 also communicates with the Liebert SiteScan centralized monitoring system.

Specifications

Electrical Specifications:

Installation Category (Overvoltage Category): II
Transient Overvoltage: 2500 Volts Maximum
Voltage: 120 VAC/240 VAC, +/-10% of nominal
Current: 0.07/0.04 Amperes
Power: 8.5 VA
Phase: 1
Frequency: 50/60 Hz
Battery Backup: 1-hour nominal

Communications:

2 standard 25-pin, EIA-232 modem and terminal
Proprietary EIA-422 protocol to Liebert SiteScan system
Proprietary EIA-485 protocol to multiple RCM8 units
Common alarm output, Form-C dry-contacts
Piezo-electric alarm: 100 dB at 30 cm, 2900 +/-500 Hz



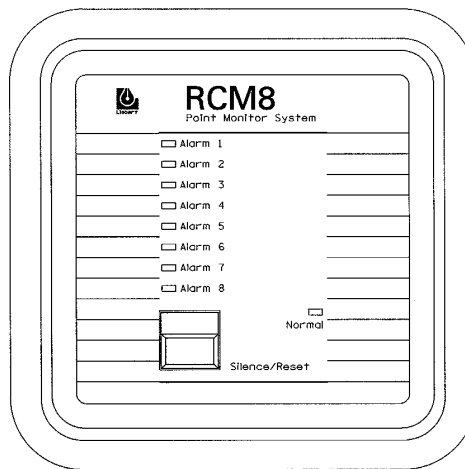
Environmental Conditions:

Operating Temp: 5°C to 40°C
Operating Relative Humidity: 0%-95% (non-condensing)
Operating Altitude: up to 2,000 meters
Pollution Degree: 2
Enclosure Type: NEMA 1 (for indoor use only)
Enclosure Protection: IP30 (protection against solid foreign objects 2.5mm or greater, no protection from water)

Display and Controls

Alarm LEDs (Red)

For all unit configurations except Master Repeater units, each alarm LED corresponds to an input and illuminates on alarm (after the programmable alarm delay expires). For Master Repeaters, its LEDs illuminate with the corresponding alarm point from the unit in alarm: ie, Master Repeater alarm 1 will illuminate when any of points 1, 9, 17 or 25 is in alarm. When a connected unit goes off-line from the EIA-485 bus, all eight LEDs flash, indicating a problem.



Normal LED (Green)

When input power is OK, the Normal LED illuminates (solid). If the RCM8 is running on the NiCad backup battery, the Normal LED blinks.

Audible Alarm

When any alarm is active, an audible alarm sounds. If alarms are non-latching (not requiring acknowledgment to reset), the beeper stops when the alarm situation no longer exists. If the alarm is latching, the beeper continues to sound until an operator acknowledges the alarm condition and resets the beeper.

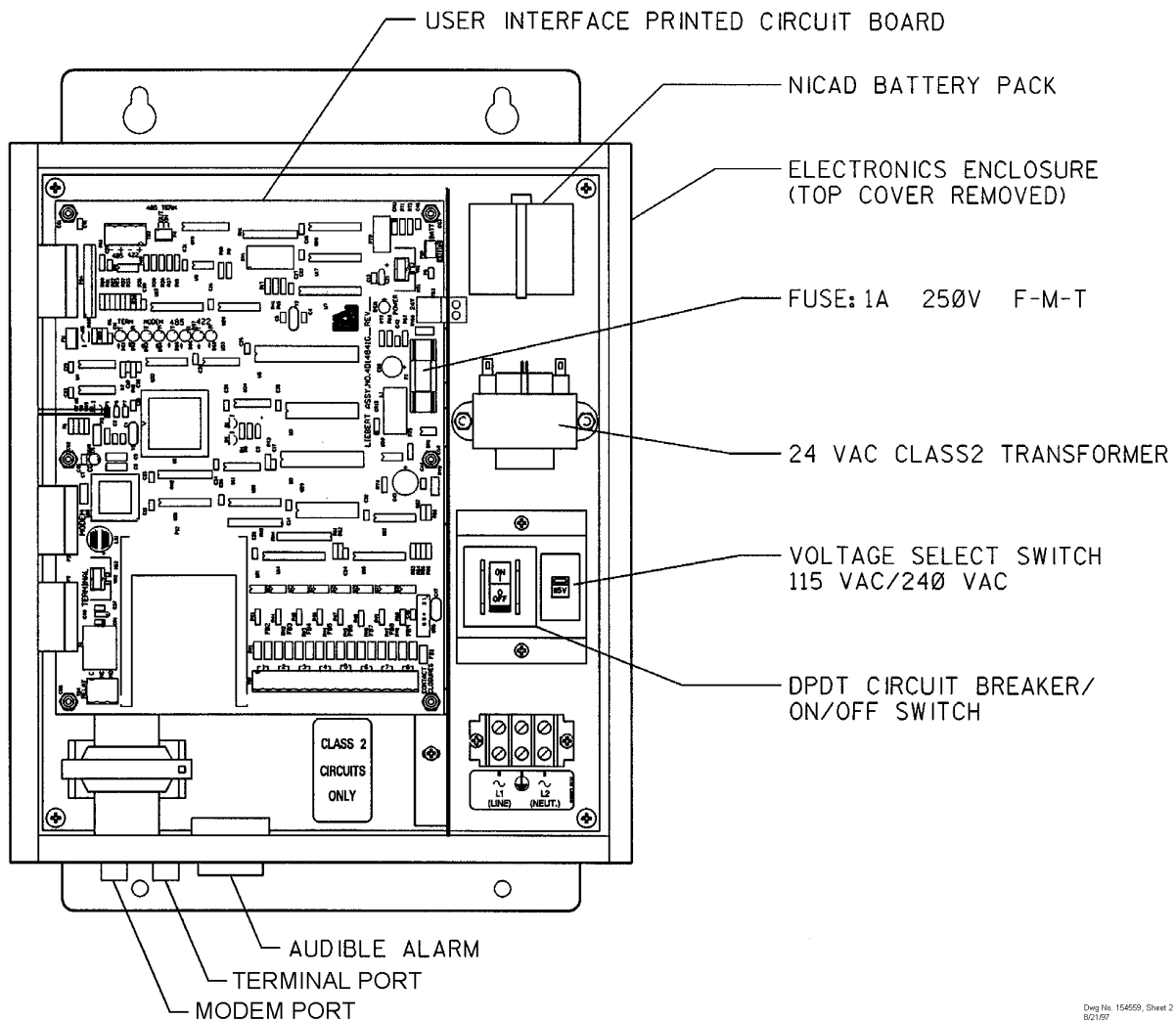
You can disable the audible beeper by removing the P1 connector on the RCM8 circuit board. See Figure 3 in Chapter 2.

Silence/Reset Switch

The Silence/Reset switch turns OFF the audible alarm. If DIP Switch SW1-8 is ON, the common alarm relay output will reset with the Silence/Reset switch.

ON/OFF Switch

The RCM8 has a power ON/OFF switch located inside the enclosure. Refer to Figure 1 below. When wiring the dry contact connections, this switch should be in the OFF position. For normal operation, the switch should be in the ON position.



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Figure 1. Component Arrangement



Liebert RCM8 • 3

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Communications Ports

Refer to Chapter 2 of this manual and the section immediately following for information on installation and configuration using these communications ports.

The RCM8 has five physical connection ports:

- **EIA-232 (PC/Terminal) Port (DCE)**—Accommodates a personal computer or VDT for setup and message display
- **EIA-232 Modem Port (DTE)**—Accommodates a modem for alarm reception and remote message transmission
- **EIA-485 Port**—Allows multiple RCM8 units to be "daisy-chained" together using twisted-pair wires
- **EIA-422 SiteScan Port**—Accommodates a Liebert SiteScan connection
- **Common Alarm Relay Output**—Accommodates a secondary warning device

Refer to Figure 1 Component Arrangement, and Figure 3 Physical Connections and DIP Switches.

Common Alarm Relay Output

The common alarm relay output is used to connect to a secondary warning device -- such as a horn or light, up to 3 Ampere @ 24 Volts DC -- that activates on alarm. When an alarm is present, the contacts close and the external warning device is activated. The common alarm relay may be reset using the Silence/Reset switch.

Alarm Relay Outputs (RCM8DO only)

On RCM8DO models, one relay output corresponding to each alarm channel is provided. There is no additional programming logic or setup involved: each Form-A Normally Open (N.O.) relay will energize when the corresponding channel goes into alarm and the front panel LED is illuminated. The relays are rated for up to 1 Ampere @ 24Volts DC.

Section 2: Installation

This section describes the installation procedure for monitoring systems using the RCM8. Installation includes:

- Unpacking and Inspection
- Mounting the RCM8 at the designated site
- Making RCM8 physical connections based on application needs
- Configuring the modem

Unpacking and Inspection

Inspect the package when delivered by the freight carrier. If the shipping container is damaged, check for internal damage and file a claim with the carrier if necessary. If the container is undamaged, unpack the RCM8 and inspect it for obvious damage. If it is necessary to ship the RCM8, use the original shipping container if possible to ensure safe transportation.

Mounting Instructions

After the DIP switches and jumpers are set correctly (as described in the section entitled Settings and Connections), mount the RCM8 on a wall at the selected location. **THIS DEVICE IS FOR INDOOR USE ONLY!**

Mounting Requirements:

Enclosure Type: NEMA 1
Hole Pattern: 15.44" x 7.00" (392.23mm x 177.80mm)
Fasteners: Use four 1/4" (6mm) bolts
Weight: 15 lbs. 8 ozs. (7.2kg)

Figure 2 describes the physical dimensions of the RCM8.

Physical Connections

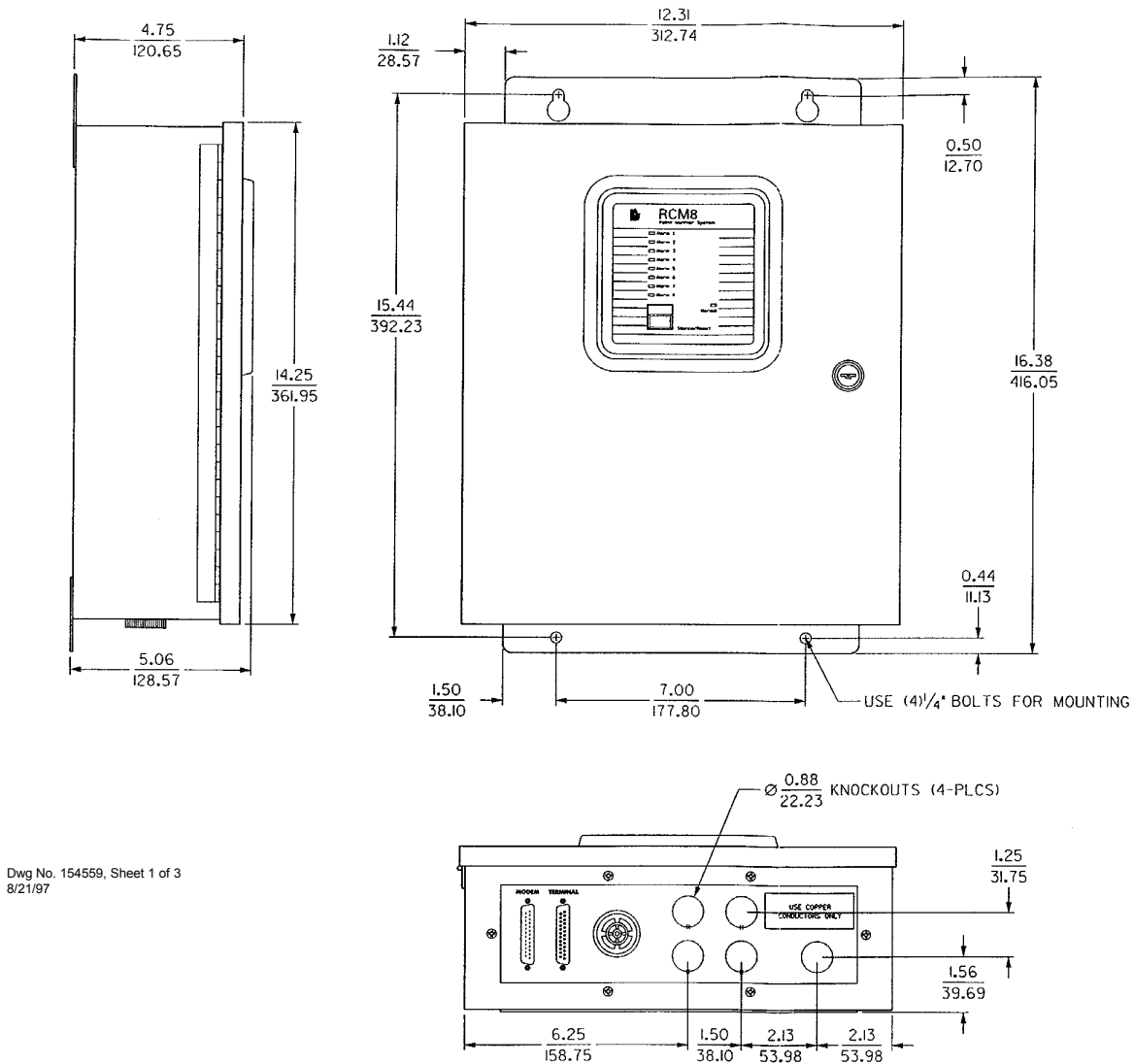
The RCM8 can be installed and configured at the hardware level to your specific application according to several configurations:

- A single RCM8 (with or without a PC or video display terminal connected)
- Multiple RCM8 units (Master, Slaves, and Repeaters) in a local configuration
- RCM8 with SiteScan central monitoring system



- RCM8 with local, short-haul modems
- RCM8 with dial-up modems to remote locations and pagers
- RCM8 monitoring multiple remote locations from a central location

Diagrams in Appendix B at the end of this manual describe possible RCM8 configurations.



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8/21/97

Figure 2. Exterior and Mounting Dimensions

Settings and Connections

To connect the RCM8:

1. Set the SW1 DIP Switches as described in the tables below:

Refer to Figure 3 when making physical connections to the RCM8. Refer also to Appendix B to define the application you wish to install.

Switch	SW1 Switches 1 and 2—Address			
	1		2	
RCM8 (Input #)	OFF	ON	OFF	ON
1 (1-8)	X		X	
2 (9-16)		X	X	
3 (17-24)	X			X
4 (25-32)		X		X

EIA-485 Master/Slave		EIA-485 Baud		Latching Alarms		Repeater		Terminal Baud Rate		Alarm Relay (Silence/Reset)	
3		4		5		6		7		8	
OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON
M	S	9600	1200	OFF	ON	OFF	ON	1200	2400	OFF	ON

DIP Switch SW1 Descriptions

- **Address (1 and 2)**—Addressing allows up to four RCM8 units to be linked together. Overlapped addresses are allowed only for dial-up operation without SiteScan.
- **EIA-485 Master or Slave (3)**—If ON, the Master unit polls the EIA-485 Slaves and has dial-out capability for the connected units. For Slave units at the ends of each EIA-485 string, set P4 jumper to IN. For all other units, set the P4 jumper to OUT. Modems do not directly attach to slave units.
- **EIA-485 Baud (4)**—9600 baud works for most multiple-unit applications. If communications are not working: check cable distance; check for a noisy communications environment; or try using 1200 baud.
- **Latching Alarms (5)**—When ON, alarms will not clear until the Silence/Reset switch is pressed and held for two seconds.
- **Repeater (6)**—A repeater RCM8 unit is connected at a different location to echo alarms received by the primary unit(s). When ON, the eight inputs of the repeater unit are disabled and the display echoes incoming alarms. Master repeaters display all alarms. Slave repeaters display alarms only from RCM8 with a matching address.



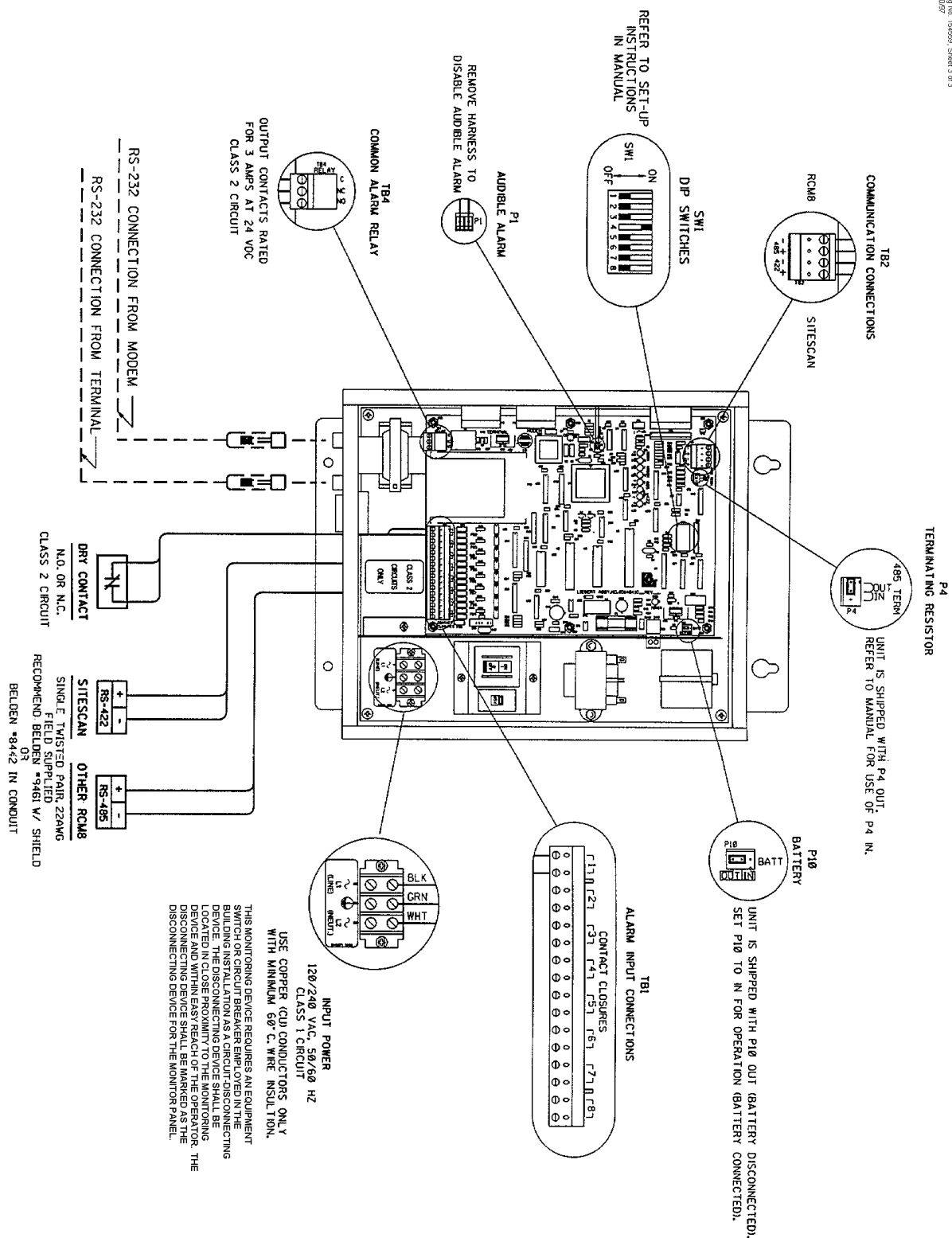


Figure 3a. Physical Connections and DIP Switches (RCM8CE)



-
- **Terminal Baud Rate (7)**—1200 or 2400 baud selectable. 7 data bits, even parity, 1 stop bit are fixed.
 - **Common Alarm Relay (Silence/Reset) (8)**—The common alarm relay energizes with any input alarm or received alarm. If Silence Reset is ON, the relay de-energizes when the audible alarm is silenced. If OFF, the common alarm relay remains energized until the input alarm is cleared.
2. Make the following physical connections as applicable. Refer to Figures 1 and 3.

The RCM8 is shipped with the backup battery disconnected. To connect the battery during installation: plug the 2-wire connector to P5; then set the P10 jumper to IN. Refer to Figure 3.

Power

Connect power to a 120 VAC or 240 VAC source, 50 or 60 Hz. Select the proper input voltage using the voltage switch located next to the ON/OFF switch.

Be sure to provide proper earth grounding for the unit by connecting the clearly marked earth grounding conductor to earth ground on the input power source. **Caution: failure to connect earth grounding conductor may result in operator injury.**

This monitoring device requires an equipment switch or circuit breaker employed in the building installation as a circuit-disconnecting device. The disconnecting device shall be located in close proximity to the monitoring device and within easy reach of the operator. The disconnecting device shall be marked as the disconnecting device for the monitor panel.

Alarm Input Connections

Use 18-22 AWG stranded pair cable for each input channel. The cable is terminated at the appropriate terminal block number (1-8). Make connections to the common alarm relay output if necessary.

Computer or Terminal

The PC or terminal port is a standard EIA-232 (DCE 25-pin female, 1200 or 2400 baud) connection for a personal computer, video display terminal connection, short-haul modems or other device utilizing a serial port.

A PC must be connected to an RCM8 to configure it. You do not need the PC after the initial configuration unless you want to change the setup or view alarms on-screen as they occur. A serial printer can be connected to this port if you wish to print and retain a hard-copy of alarms.

Liebert recommends a maximum cable length of 300 feet with 22 AWG wiring.

Liebert recommends a maximum cable length of 50 feet or use of a short-haul modem for any device connected to the PC EIA-232 port.

Liebert recommends a maximum cable length of 3280 feet. Use a twisted-pair wire and maintain polarity (+/-). The slave unit at the end of the string (the last RCM8) must have the P4 jumper set to IN. The P4 jumper on all other units must be set to OUT.

Proprietary EIA-485

The EIA-485 port is a proprietary connection that allows you to network multiple RCM8 units in a "daisy-chain" configuration. Multiple unit configurations must include a "master" unit to which three or four "slave" units can be connected; repeaters may also be daisy-chained.

Use 18-22 AWG stranded, twisted-pair wires. Run the EIA-485 cable from the EIA-485 terminal block to other EIA-485 terminal blocks in the same string. Set the P4 jumper on the last slave unit IN: set the P4 jumper on all other units OUT. Maintain +/- polarity.

Proprietary EIA-422

The EIA-422 is a proprietary connection to a Liebert SiteScan system. The SiteScan system data file must include the RCM8 as a contact closure module. Alarm text for RCM8 units connected to SiteScan is entered through the RCM8 using a PC or terminal. In multiple RCM8 configurations, each slave unit transmits only its own alarms; the master unit transmits all alarms.

Run the EIA-422 cable from the EIA-422 terminal block on the master unit to the appropriate terminal block number of the SiteScan system.

3. Apply power to the system and configure the unit parameters as described in Section 3 of this manual.

Modem

The modem port is a standard EIA-232 (DTE 25-pin male, 1200 or 2400 baud) connection for a dial-up modem, null modem cable, short haul modem, or leased line. Alarms that are configured to transmit use this port.

First, connect the modem, power, and phone cables as directed in the documentation that came with your modem. Next, using a standard 25-conductor EIA-232 cable, connect one end to the 25-pin Modem port on the RCM8. Connect the other end to the 25-pin EIA-232 port on the modem. Be sure all connections are secure to ensure proper operation.

Communications parameters for this port are fixed **7 data bits, even parity, and 1 stop bit**. Refer to the dial-up modem setup information later in this Section for other settings related to the modem.

Liebert recommends a maximum cable length of 50 feet for any device connected to the modem EIA-232 port.

Modem Settings

Data compression needs to be disabled on external modems used with RCM8. On U.S. Robotics Sportster® modems, the modem command to disable data compression is AT&K0.

Error correction may or may not need to be disabled, depending on your application and premise equipment. The modem command AT&M4 allows the modem to select the error correction mode; AT&M0 will manually disable error correction.

Modem commands can be directly issued via the Modem Pass-Thru mode in the RCM8 Modem Configuration menu. Refer to Section 3.

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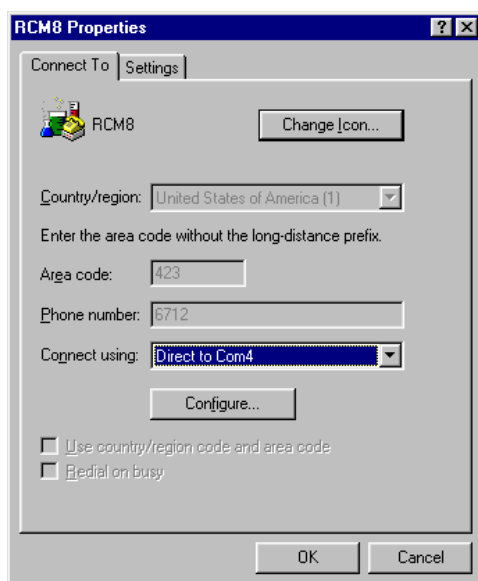
Terminal Parameters

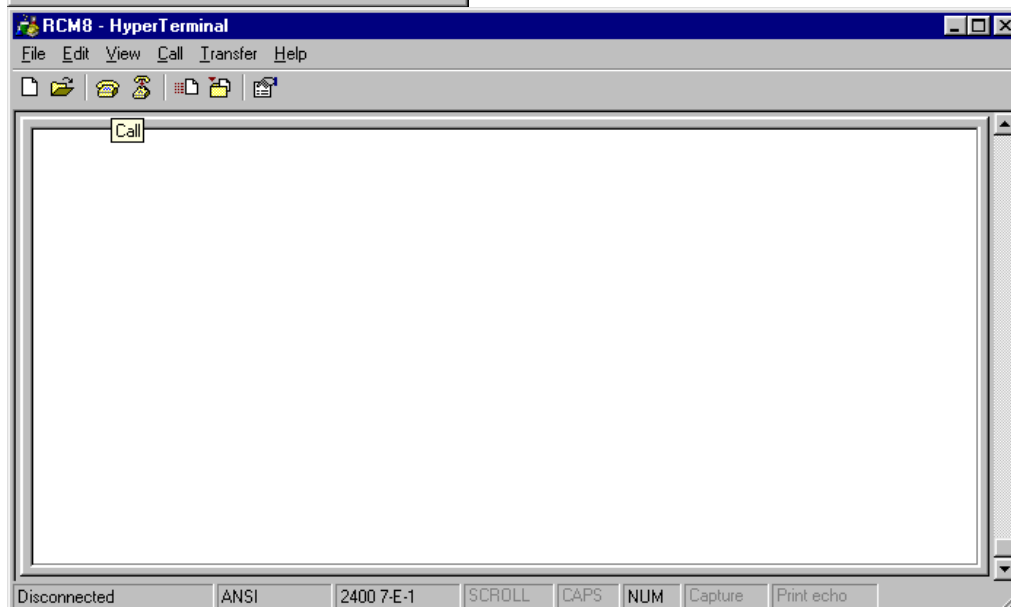
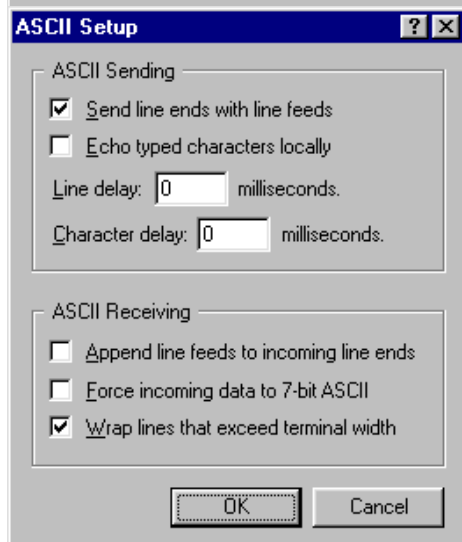
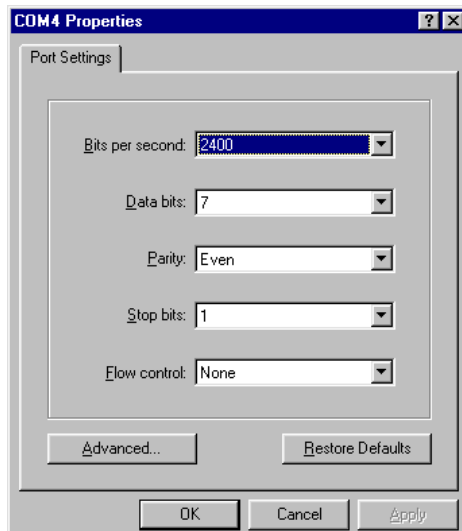
A personal computer (PC) or video display terminal (VDT) is necessary to configure the RCM8. On PC's, a terminal emulation package is typically included with the operating system: on Windows 3.1, *Terminal* is located in the Accessories program group; on Windows 95/98, the *Hyperterminal* application is typically located in its own folder Accessories.

The steps below outline the typical configuration needed to connect PC running Hyperterminal to RCM8, using a regular serial cable direct connection.

Windows 95 / 98

1. Start HyperTerminal by clicking Start/Programs/Accessories/HyperTerminal. Double click the *HyperTerminal* icon.
2. Press *ESC* (escape key) to exit out of new connection dialog box.
3. To establish a new session for communicating to RCM8, go to *File / Properties*. Select *Direct to Com** where Com* is the appropriate Com port for your PC. Any information in the *Area Code* and *Phone Number* fields will be greyed-out and will not be used.





4. Click on the *Configure* button. Select the corresponding baud rate as set on RCM8 DIP Switch 1-7; select 7 data bits; Even parity; 1 stop bit; No flow control. Click on *OK* to confirm entry and return to previous dialog box.
5. Click on the *Settings* tab, and the *ASCII Setup* button. Ensure the *Send line ends with line feeds* check box is selected, and that the *Echo typed characters locally* check box is de-selected. Click on *OK* to confirm entries and exit from dialog box.
6. **IMPORTANT: Save the connection information** at this time by going to *File / Save As*.
7. Once the communication parameters are set and saved, connect with the RCM8 by selecting *Call / Connect*, or click on the telephone icon in the menu bar.

Section 3: RCM8 Menus

The RCM8 Main Menu has 12 options that let you set configuration parameters.

Accessing the Setup Menus

After you have installed your RCM8 system you must set the software parameters using the RCM8 Main Menu and Sub-menus. The diagram on the following page describes the RCM8 menu system.

You can access the Main Menu from a local computer connected to the RCM8 or remotely via computer/modem.

To access the RCM8 Main Menu from a LOCAL COMPUTER:

1. Turn on the computer and the RCM8.
2. Press *Space Bar* to begin the login process.
3. Type the RCM8 password, then press ENTER to access the Main Menu. The factory-set password is "RCM8".
4. At any time during the configuration, press *Esc* to back up through the menus to return to the Main Menu:

```
LOG ON:****
RCM8 TERMINAL MENU
1. Configuration
2. Setup Input Options Menu
3. Alarms Review
4. Alarms Clear
5. Set Clock
6. Set Modem Options
7. Set Terminal Options
8. Set 485 Options
A. Display SS Alarm Block
B. PCMCIA Menu
P. Set New Password
X. Exit
```

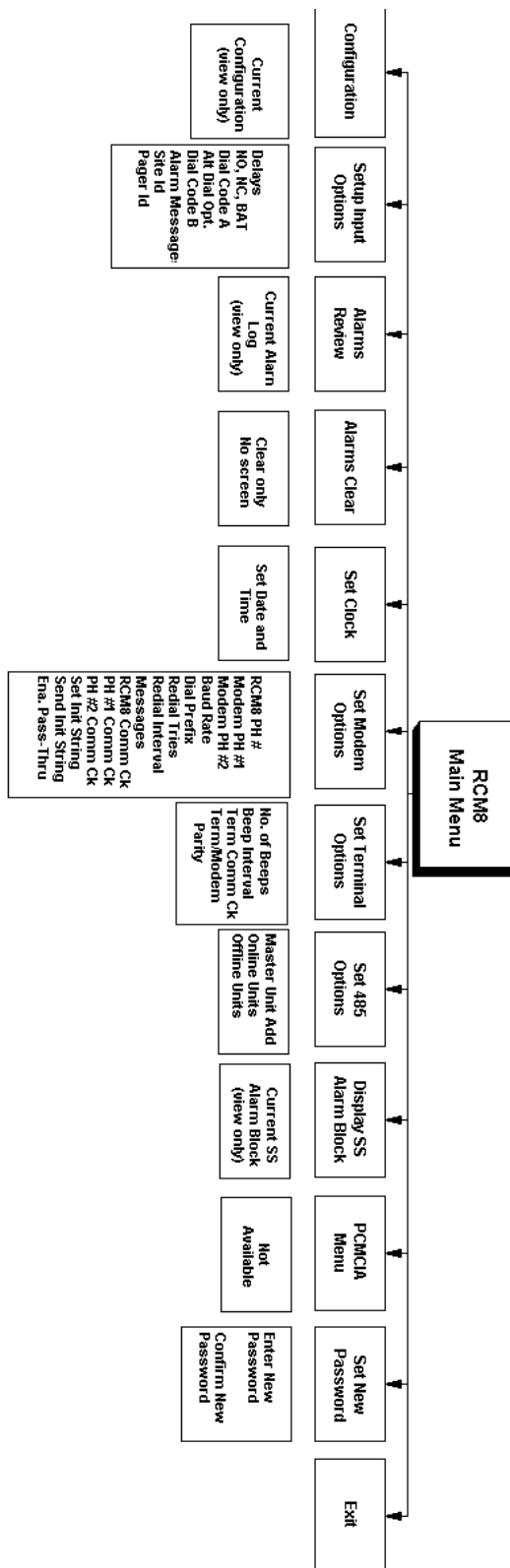


Figure 4. Menu Structure

To access the RCM8 Main Menu VIA MODEM:

1. Make sure RCM8 and attached modem are turned on and properly configured.
2. On the remote PC, set up terminal emulation session for dial-out access – *Connect Using* an attached modem, rather than direct connect to a com port.
3. Once a connection has been established with the RCM8, press *Space Bar* to initiate the log-in process.
4. Type the RCM8 password, then press *Enter* to gain access to the RCM8. The factory-default password for modem access is also “RCM8”.
5. From here, continue to Step 3 of the local login process.

Configuration

The Configuration option from the Main Menu lets you view the current RCM8 settings.

1. Press *I* to display the Configuration menu:

```
RCM8 V4.0 CONFIGURATION - MON 07-05-99 18:03:20
SITE ID = WEST WING COMPUTER ROOM          PAGER ID - 5551149
IN  DELAY  NO  DIAL  ALT  DIAL  MESSAGE
   MM:SS  NC   A    CODE  B
-----
01  00:00  NO   1     0     0    WATER UNDER FLOOR
02  00:00  NO   1     0     0    HIGH TEMP
03  05:00  NC   2     &     1    DOOR HELD OPEN
04  00:00  NO   0     0     0    CLOGGED FILTER
05  00:00  NO   0     0     0    HIGH HUMIDITY
06  00:00  NO   0     0     0    CONTACT #6
07  00:00  NO   0     0     0    CONTACT #7
08  00:00  NO   0     0     0    CONTACT #8
RCM8 Phone Number =
Phone Number 1    = 9,5551212,,,,,911##
Phone Number 2    = A9,18007596366
Dial Prefix       = ATE1X4DT
Redial Tries      = 2
Redial Interval   = 30
Modem             = CONNECTED
Modem Baud Rate   = 1200
EIA-485 Online Units =
```

This is a view-only screen. Use the remaining Main Menu options to make changes or reset the values shown in this screen.

2. Press *Esc* to return to the Main Menu.

Setup Input Options Menu

The Setup Input Options item lets you configure RCM8 information governing alarm delays, contact status, dial codes, alarm messages, site and pager IDs.

To configure input options:

1. From the Main Menu, press 2 to display the RCM8 Setup menu:

```
RCM8 SETUP MENU
1. Set Delays
2. Set NO or NC or BAT
3. Set Dial Code A
4. Set Alternate Dial Option
5. Set Dial Code B
6. Set Alarm Messages
7. Set Site Id
8. Set Pager Id
<ESC> to Quit
```

2. Press the number corresponding to the parameter you wish to configure, then enter the appropriate data as follows:

Set Delays (1)

Set the period of time that must expire before an alarm condition will trigger the alarm.

Press 1 to access the input (dry contact point) delays setup option, then enter the specific contact point (01 - 08) for which you will set a delay. Next, enter the time delay in minutes and seconds (00:00 to 99:59) for this contact point. Press *Enter* to return to the Setup menu.

Set NO or NC or BAT (2)

Configure the contacts as Normally Open (NO), Normally Closed (NC), or Battery (BT). Battery disables the contact closure and monitors RCM8 battery operation. If the RCM8 loses AC power and reverts to battery, the alarm is turned ON.

Press 2 to configure the contact status. Enter the specific contact point to configure (01 - 08), then type NO, NC, or BT. Press *Enter* to return to the Setup menu.

Set Dial Code A (3)

Select an alarm option for transmission through the modem port.

- 0=Disabled, do not transmit via modem
- R=Transmit alarm to another RCM8
- 1=Transmit alarm to remote device via PHONE NUMBER 1
- 2=Transmit alarm to remote device via PHONE NUMBER 2

Remote devices connected to Phone Numbers 1 and 2 can be RCM8s, terminals, or (regular or numeric) pagers.

Press 3 to select a modem port transmission code. Enter the specific contact point to configure (01 - 08), then type the desired transmission option. Press *Enter* to return to the Setup menu.

Set Alternate Dial Option (4)

Configure instructions for alarm transmission to a second phone number.

- 0=Disabled, do not transmit to second phone number
- &=Dial and transmit alarm to both dial codes A and B. (See Set Dial Code B below)
- #=Dial and transmit alarm to either dial code A or B

Press 4 to select an alternate dial option. Enter the specific contact point to configure (01 - 08), then type the desired transmission option. Press *Enter* to return to the Setup menu.

Set Dial Code B (5)

Select an option for alarm transmission to a secondary phone number.

- 0=Disabled, do not transmit
- R=Transmit alarm to another RCM8
- 1=Transmit alarm to another device via PHONE NUMBER 1
- 2=Transmit alarm to another device via PHONE NUMBER 2

Press 5 to the Dial Code B option. Enter the specific contact point to configure (01 - 08), then type the desired transmission option. Press *Enter* to return to the Setup menu.



For example, you might wish to enter the alarm text for input 01 as "Call Maint. Jim at x9999". Each time an alarm occurs on contact point 01, the RCM8 displays the message to call Jim.

A reference of special characters commonly used when inputting a pager key sequence is included in Appendix A at the end of this manual.

Set Alarm Messages (6)

Enter a custom alarm message to display each time its associated input alarm is triggered. You can enter up to 25 characters.

Press 6, then enter the specific contact point to configure (01 - 08). The existing message is displayed with a prompt to enter the new message. Type the desired alarm text, then press *Enter* to return to the Setup menu.

Set Site ID (7)

Enter a descriptive header for all alarms transmitted through this RCM8 unit. This message is not unique to a contact point. The Site ID is a convenient way to identify the source of the alarm. Site ID can be a maximum of 30 characters.

Press 7 to access the Site ID configuration parameter. The existing Site ID is displayed with a prompt to enter a new ID. Type the desired text, then press *Enter* to return to the Setup menu.

Set Pager ID (8)

The RCM8 is designed to work with **alpha-numeric** pagers. Enter the pager key sequence if the RCM8 is to communicate alarm messages to an alpha-numeric pager. Be sure to include any special characters such as commas when entering the pager key sequence. The Set Pager ID field specifies the actual pager phone number; it should not include the access phone number for the alpha-numeric paging company. Only one (1) alpha-numeric pager is supported.

Press 8, then enter the pager key sequence. The existing pager ID is displayed with a prompt to enter the new pager key sequence. Type the desired number (including special characters), then press *Enter* to return to the Setup menu.

Press *Esc* to exit the Setup menu and return to the Main Menu. Changes made to this parameter are saved when you press *Esc*.

Alarms Review

The Alarms Review option for a master unit displays local alarms only.

The Alarms Review option from the Main Menu displays recent alarm history. The history stores up to

- 100 local alarms transmitted from non-repeater units
- 16 alarms transmitted from connected repeater units

To view the alarm history:

1. From the Main Menu, press 3 to display the alarm history.

```
Alarms Last Cleared at 08-15-97 13:41:37
07-05-99 13:05:21 WATER UNDER FLOOR
07-04-99 05:45:32 HIGH HUMIDITY
07-03-99 23:57:16 HIGH HUMIDITY
End - Press Space Bar for Menu
```

This is a view-only screen indicating when the alarms were last cleared and listing the first 20 recorded alarms (by input contact number).

2. If the history contains more than 20 alarms, press the spacebar to view the next screen of 20 alarms.
3. When you are finished viewing the alarms, press *Space Bar* or *Esc* to return to the Main Menu.

Alarms Clear

The Alarms Clear option from the Main Menu lets you clear the alarm history log and reset each alarm input. If the RCM8 is a master unit, this option clears the alarm history logs for each connected slave unit.

From the Main Menu, press 4 to clear the alarm history log. When the log is clear, the RCM8 returns to the Main Menu and does not display any indication that the alarm history is cleared. You can verify that the alarm history is cleared by pressing 3. Alarms History from the Main Menu.

Set Clock

If the RCM8 is a master unit, it transmits its current date and time to each connected slave unit at the beginning of each hour.

The Set Clock option from the Main Menu lets you reset the internal date and time clock of the RCM8.

To set the clock:

1. From the Main Menu, press 5. The RCM8 displays the date and time as it is currently set in the unit and prompts you to enter the new date and time.

```
Current Date/Time is MON 07-05-99 18:03:20
Enter New Date/Time (MM-DD-YY HH:MM)
```

2. Type the correct date and time (in a single string). The format is MM-DD-YY HH:MM. The RCM8 automatically sets the seconds count to 00.
3. Press *Enter* to change the date and time and return to the Main Menu.

Set Modem Options

Modem options are not available for slave or repeater units. The Master unit is responsible for dial-out operations for all slaves connected on the EIA-485 network.

The Set Modem Options item from the Main Menu lets you configure the telephone numbers and dialing parameters for modem connected to the unit. You can also perform a test on the communications port where the modem and phone are connected to verify proper operation.

To set modem options:

1. From the Main Menu, press 6 to display RCM8 Modem Setup Sub-menu:

```
RCM8 MODEM SETUP MENU
1. Set RCM8 Phone Number =
2. Set Phone Number 1    = 9,5551212,,,,,911##
3. Set Phone Number 2    = A9,18007596366
4. Set Modem Baud Rate   = 1200
5. Set Dial Prefix       = ATE1X4DT
6. Set Redial Tries      = 2
7. Set Redial Interval   = 30
8. Set Modem Messages    = Y
9. Set RCM8 Comm Check   = OFF
A. Set PH1 Comm Check    = OFF
B. Set PH2 Comm Check    = OFF
C. Set Modem Init String = AT&C1&D3S0=1&W0
I. Send Modem Init String
M. Enable Modem Pass-Thru Mode
<ESC> to Quit
```

This menu also shows the current configuration.

2. Press the number or letter corresponding to the parameter you wish to configure, then enter the appropriate data as follows:

Set RCM8 Phone Number (1)

Enter the phone number of another RCM8 that will be notified when an alarm occurs. You can use up to 40 characters in a phone number. Press *Enter* to return to the Modem Setup menu.

Set Modem Phone Number 1 (2)

Enter the telephone number (including any required special characters) for the modem that will receive the alarm indication. This modem can be in another RCM8 or in a personal computer. You can use up to 40 characters in a phone number. Press *Enter* to return to the Modem Setup menu.

If you are using a leased line (or short-haul modem) for alarm communication, enter LEASED as RCM8 Phone Number.

If two RCM8 units are connected to a generic EIA-232 device, enter LEASED as Modem Phone Number 1.

Modem Phone Number 2 is not a leased-line option.

Set Modem Phone Number 2 (3)

Enter a phone number for another receiving modem (if applicable). Press *Enter* to return to the Modem Setup menu.

Using an Alpha-Numeric Pager

When using an alpha-numeric pager, you must enter the letter "A" before the pager access code phone number. Refer to the sample screen on page 17 of this manual.

Note: most alpha-numeric paging services do not yet support 2400 baud modem connections: use 1200 baud.

Using a Numeric Pager

When using a numeric pager, an example of the pager number that you enter is:

Phone Number 1 = 9,5551212,,,,,911##

Each comma forces the mode to pause for two seconds. The 911 is the user-arranged "code" that identifies the page as being from the RCM8. The ## signify the end of the pager number and alarm code.

(See Appendix A on Page A-1 for additional modem/pager characters.)

When using numeric pagers, you will have to experiment with the number of commas that you need to enter in order to get the correct delay before the message is sent.

The **Set Pager ID** field is left blank when using numeric pagers.

Set Modem Baud Rate (4)

Enter *1* for 1200 or *2* for 2400. Press *Enter* to return to the Modem Setup menu.

Set Dial Prefix (5)

Press *5* if you need to change the dial prefix. From the factory, the Dial Prefix is entered as ATE1X4DT. Do not change this dial prefix unless you are thoroughly familiar with the Hayes command set. Press *Esc* to return to the Modem Setup menu.

Set Redial Tries (6)

Enter a number (0-99) representing the number of times the RCM8 will attempt to redial a phone number should the first attempt fail. Press *Enter* to return to the Modem Setup menu.

Set Redial Interval (7)

Enter a number (0-99) representing the number of minutes between redial attempts. Press *Enter* to return to the Modem Setup menu.

Set Modem Messages (8)

Type *Y*(es) to enable, or *N*(o) to disable modem messages. If enabled, all communications to the RCM8 are echoed to the computer monitor, printer, or terminal connected to the EIA-232 terminal port. This feature is useful to verify proper modem operation. Press *Enter* to return to the Modem Setup menu.

Set RCM8 Comm Check (9)

Enter the time (HH:MM) at which the RCM8 will send a communications port check message. Type OFF to disable this feature. If enabled, at the designated time, the RCM8 dials the RCM8 phone number (defined under Modem Option 1) and transmits the date/time, Site ID, and the words "COMM CHECK". Press *Enter* to return to the Modem Setup menu.

Set PH 1 Comm Check (A)

Enable or disable the Phone Number 1 Comm check option as described above. Press *Enter* to return to the Modem Setup menu.

Set PH 2 Comm Check (B)

Enable or disable the Phone Number 2 Comm check option as described above. Press *Enter* to return to the Modem Setup menu.

Set Modem Init String (C)

This modem string is set correctly at the factory. Do not change the Set Modem Init String.

Enable Modem Pass-Thru Mode (M)

This parameter lets you configure the modem through the PC (if necessary). All of the modem commands are passed through or displayed on the PC monitor.

3. When you are finished setting modem options, press *Esc* to exit the Modem Setup menu and return to the Main Menu. Changes made to this parameter are saved when you press *Esc*.

Set Terminal Options

The Set Terminal Options Main Menu item lets you configure the audible beep characteristics that are annunciated when an alarm occurs and terminal/modem parity. This option also lets you enable a communications check that sends a date and time message at a specified hour each day.

To set terminal options:

1. From the Main Menu, press 7 to display the terminal options Sub-menu:

```
RCM8 TERMINAL OPTIONS MENU
1. Set Number of Beeps = 5
2. Set Beeper Interval = 0
3. Set Terminal Comm Check = OFF
4. Set Term/Modem Parity = 7E
<ESC> to Quit
```

This menu also shows the current configuration for each item.

2. Press the number corresponding to the parameter you wish to configure, then enter the appropriate data as follows:

Set Number of Beeps (1)

Enter the number of times the RCM8 will beep per second (0 to 5) on receipt of an alarm. Press *Enter* to return to the Terminal Options menu.

Set Beeper Interval (2)

Enter the number of seconds (0 to 5) to elapse between alarm beeps. (0=disabled). Press *Enter* to return to the Terminal Options menu.

Set Terminal Comm Check (3)

Enter the time (HH:MM) at which the RCM8 will send a communications check message to the monitor, printer, or terminal connected to the EIA-232 Terminal port. Type OFF to disable this feature. If enabled, at the designated time, the RCM8 transmits the date/time, Site ID, and the words "COMM CHECK". Press *Enter* to return to the Terminal Options menu.

Set Term/Modem Parity (4)

Type 7E for seven data bits/even parity or 8N for eight data bits/no parity. Seven data bits/even parity is the proper setting for most applications.

3. When you are finished, press *Esc* to exit the Terminal Options menu and return to the Main Menu. Changes made to this parameter are saved when you press *Esc*.

Set 485 Options

The Set 485 Options item from the Main Menu lets you address slave units connected to a master through the EIA-485 port. If a connected slave unit loses communication, the master RCM8 dials out to report the communication loss.

To set EIA-485 port parameters:

1. From the Main Menu, press 8 to display the Terminal Options Sub-menu:

```
RCM8 EIA-485 OPTIONS MENU
* Master Unit Address = 1
1. Set Online Units =
2. Set Offline Units = 2 3 4
<ESC> to Quit
```

This menu also shows the current configuration for each item.

2. Press the number corresponding to the parameter you wish to configure, then enter the appropriate data as follows:

Master Unit Address

This address must always be 1 when master and slave units are connected.

Set Online Units (1)

Add an address for a new active slave unit.

Set Offline Units (2)

Do not add an address for an offline unit.

3. When you are finished, press *Esc* to exit the EIA-485 Options menu and return to the Main Menu. Changes made to this parameter are saved when you press *Esc*.

Display SS Alarm Block

The Display SS Alarm Block option from the Main Menu sends RCM8 information to a SiteScan alarm block. Alarm information on up to 4 RCM8 units can be displayed by the SiteScan.

To display the SiteScan alarm block:

1. From the Main Menu, press *A* to display the SiteScan alarm block:

00	00	00	00	00	00	00	00	01	00	00	00	00	00	00	00	00
00	01	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

This is a view-only screen. The first eight sets of 00 in the top row indicate the eight alarm points of RCM8 unit 1, and so forth for 32 alarm points on four RCM8 units. The example above shows an alarm on contact point number 8 on the first RCM8 unit and contact point number 2 on the third RCM8 unit.

2. When you are finished viewing the information, press *Esc* to return to the Main Menu.

Set New Password

The Set New Password option lets you assign a security password protecting the RCM8 setup menu from unauthorized changes.

To set a new password:

1. From the Main Menu, press *P* to access the new password setup screen.
2. Type the desired new password then press *Enter*.
3. At the next prompt, retype the password exactly as you entered it in step 2, then press *Enter* to confirm the password. The new password is saved automatically.
4. Press *Esc* to exit the password setup screen and return to the Main Menu.

The factory-set password is "RCM8."

Exit

The Exit option returns the system to the initial prompts for Main Menu, Status, or Alarms.

Section 4: Operation

When the RCM8 is installed and configured correctly, the unit basically operates on its own receiving and responding to incoming alarms. While the RCM8 is fully functional on its own, it is more convenient to connect a computer or monitor to facilitate operator interaction. This section describes the RCM8 operator functions.

Receive Alarms

The green and red LED lights on the RCM8 front panel indicate normal operation and receipt of alarms. A computer, video monitor, or printer also indicates incoming alarms by displaying the alarm text configured in Setup.

Audible indication of alarms is given by a series of beeps (configured in Setup) through the RCM8 or computer speaker. Beeping continues until the alarm is silenced.

Silence Alarms

Alarms can be silenced and reset using the RCM8 front panel or the computer keyboard.

To silence alarms from the RCM8, press the Silence/Reset button on the front panel. This procedure also resets the input contact that was involved with the alarm.

To silence the alarm at the PC and at the RCM8 from the computer keyboard, press any key. This procedure does not reset the input contact if it is latching.

View Input Status

You can view input status only if a computer or monitor is connected.

To view input status:

1. Access the RCM8 logon screen by turning the RCM8 and monitor ON or by dialing to the RCM8 via modem.
2. Type *Space Bar* to begin the login process.
3. Type the RCM8 password, then press *Enter*.
4. Press *S* to display the current input status (ON/OFF). If the RCM8 unit you are polling is a master unit with slave units connected, all inputs (including slave inputs) are displayed.
5. Press *Esc* to return to the log on screen.

The factory-set password is "RCM8."

Review Alarms

The Alarms Review option for a master unit displays local alarms only.

The RCM8 maintains a history of alarms that have been received by the unit. This alarm history can be accessed through the RCM8 Terminal menu, or by accessing the RCM8 logon screen and pressing A.

The alarm history log stores up to 100 local alarms transmitted from non-repeater units or 16 alarms transmitted from connected repeater units.

The RCM8 can display up to 20 alarms on a screen at a time. If more than 20 alarms are logged, press the spacebar to view the next screen.

Press *Esc* to return to the logon screen.

You can also view the alarm history log using the RCM8 Terminal menu as described previously in this manual.

Pager Operation

An integral feature of the RCM8 is its capability to communicate alarm occurrence and alarm text to a pager.

The pager telephone number is entered in setup using the RCM8 Setup menu (accessed from the Terminal menu).

If the RCM8 is configured to dial a pager on alarm, the unit dials the number entered in setup. Depending on your pager capabilities, you may receive a beep and a phone number to call or you may receive the alarm text transmitted from the RCM8. Refer to your pager manual for its capabilities, configuration, and operating instructions.

Section 5: RCM8 Equipment Maintenance

Safety Instructions

CAUTION: DEVICE MUST BE ISOLATED OR DISCONNECTED FROM THE HAZARDOUS LIVE VOLTAGE BEFORE ACCESS.

NOTE: CIRCUIT BREAKER/SWITCH DOES NOT OPEN BATTERY CIRCUIT. OPEN CIRCUIT BREAKER/SWITCH AND DISCONNECT BATTERY PACK BEFORE SERVICING DEVICE.

NOTE: WHEN THE FOLLOWING SYMBOLS ARE DISPLAYED, THEY INDICATE:

a.  Earth grounding conductor

b.  Alternating Current

CAUTION: FAILURE TO CONNECT EARTH GROUNDING CONDUCTOR MAY RESULT IN OPERATOR INJURY.

CAUTION: FAILURE TO ISOLATE OR DISCONNECT DEVICE FROM THE HAZARDOUS LIVE VOLTAGE BEFORE ACCESS MAY RESULT IN OPERATOR INJURY SERVICING DEVICE.

Battery

Type: Rechargeable Ni-Cad battery pack

Replacement: Liebert P/N 133455P1

Disposal: **CAUTION. DO NOT incinerate, short circuit, or mutilate. May burst and cause burns or release toxic materials. Must be disposed of in an EPA approved manner.**

Fuse

Replacement: Replace "F1" fuse with 1A, 250V F-M-T (AGC-1 or ABC-1)
Liebert P/N G12-4000

Appendix A: Pager Special Characters

The following characters are valid for most pagers. Refer to the documentation that came with your pager for additional information.

Table A–1 Telephone Number Characters

Remote Modem and/or Pager Characters

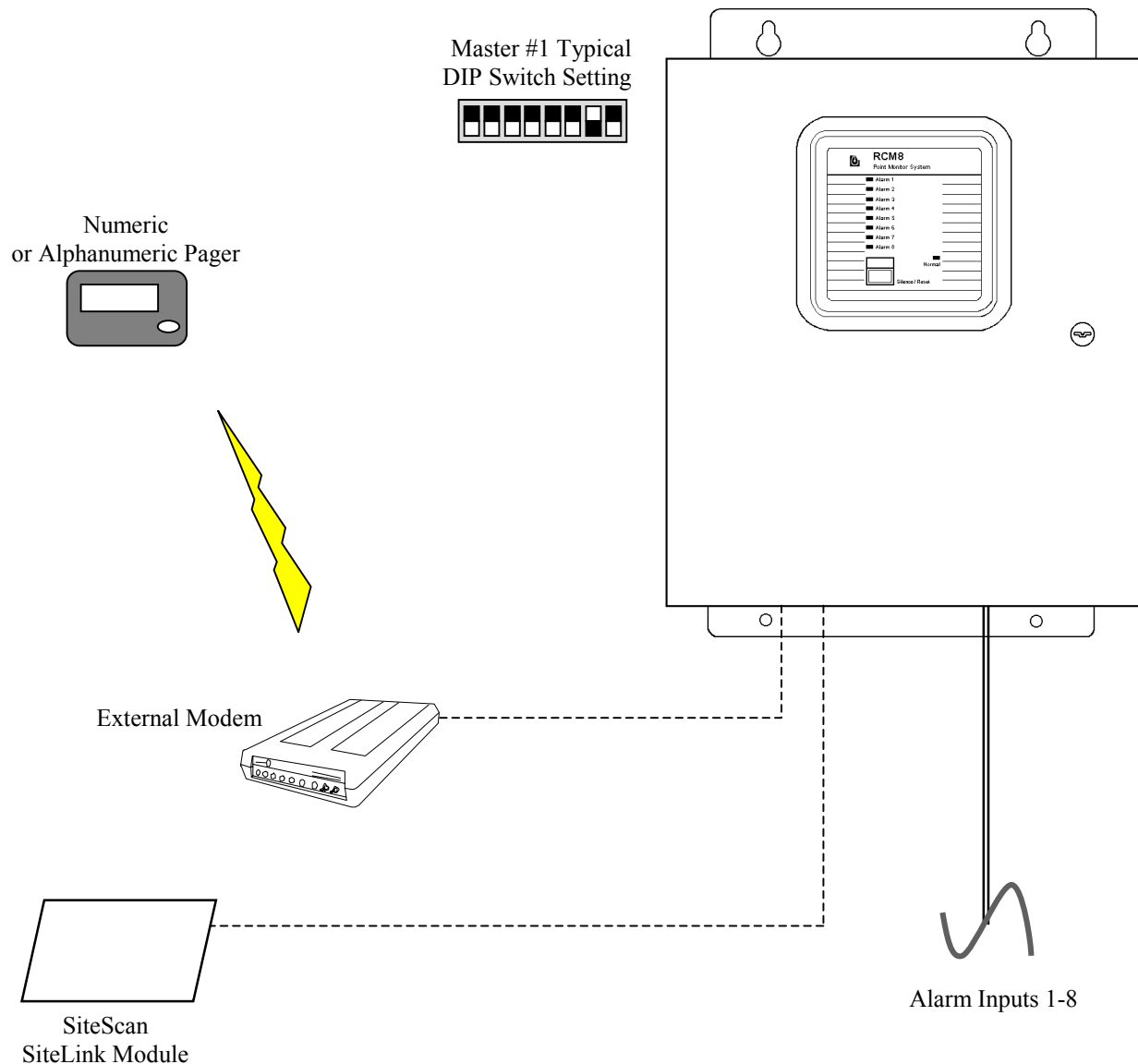
Character	Description
0–9	Are the actual digits of the telephone number.
!	Forces the modem to perform a “hook flash” (i.e. hang up quickly and release) operation. The hook-flash is sometimes used in office phone systems to signal the local switchboard to listen for special codes to follow.
-	Make the telephone number more readable. They are ignored by the modem, and can be placed anywhere in the field.
()	
<SPACE>	
,	Forces the modem to pause 2 seconds before continuing to dial. A comma should be used when you must dial “9” to get an outside line. If the modem must pause for several seconds after dialing 9 for an outside line, the complete dial string may look like this: 9,,555-8243.
W	Causes the modem to wait before continuing. W means “wait for a dial tone.”
R	Stands for “Reverse.” The R command is a prefix which tells the modem to connect with an originate-only modem. Without the prefix, the modem may not communicate with an originate-only modem. If used, R must be prefixed to any digits dialed, i.e. R 9, 555-8325.
T, P	Selects tone or pulse dialing. Only one of these can be used in a given number. They are both prefixes, the T stands for tone (i.e. touch tone) and the P stands for pulse. By default, the modem uses tone dialing. If the phone line requires pulse dialing, a P must be prefixed to the number, i.e. P 555-8325.
@	Is used to wait past a recorded voice message that is requesting additional information input such as a recording giving instructions for entering an extension or password. When used, @ commands the modem to wait 5 seconds before continuing to the next part of the dial string.
#	Signifies the end of the number. Two consecutive pound signs at the end of telephone number signify to RCM8 that it is dialing-out to numeric pager.
*	Generates a separator character between fields in the display window. For example, if the pager display string is 555*8325, it appears in the pager window as 555-8325.

Appendix B: Typical Configurations

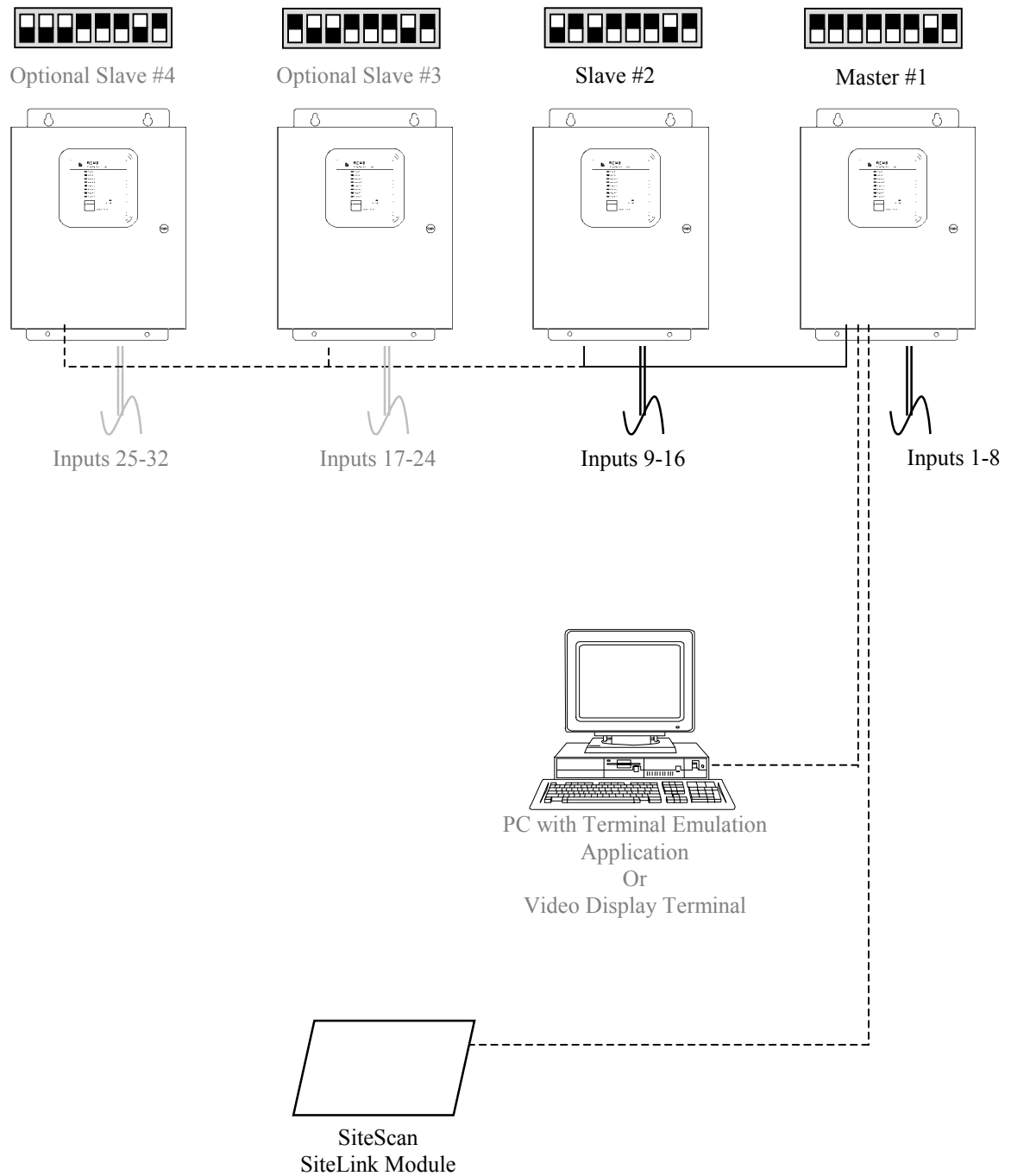
The RCM8 can be configured with tremendous flexibility, in order to accommodate various applications. The following diagrams illustrate some typical system configurations.

Refer to Chapter 2 for complete explanation of DIP Switch settings.

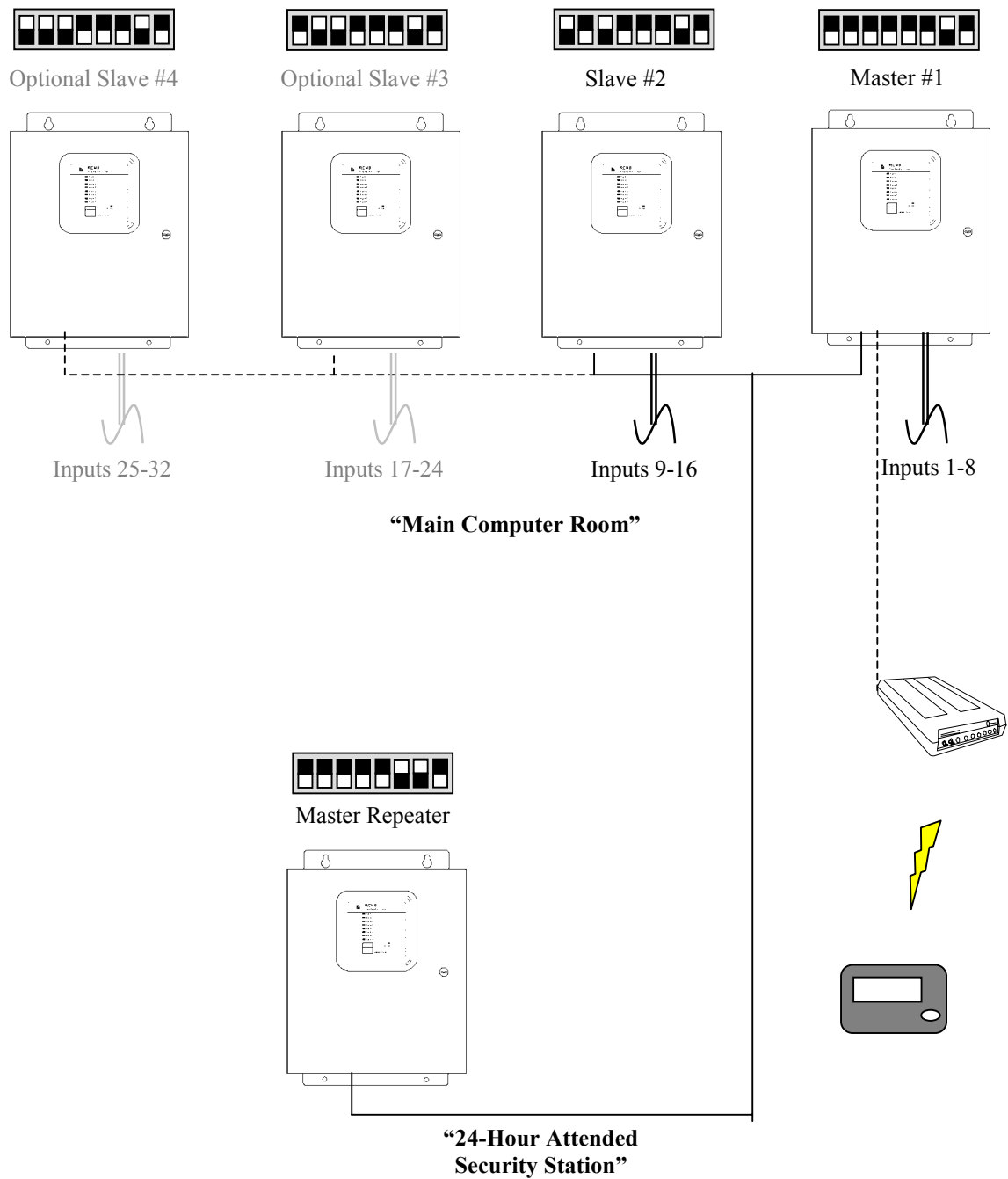
Standalone Operation with Optional Pager Dial-out and Optional SiteScan Connection



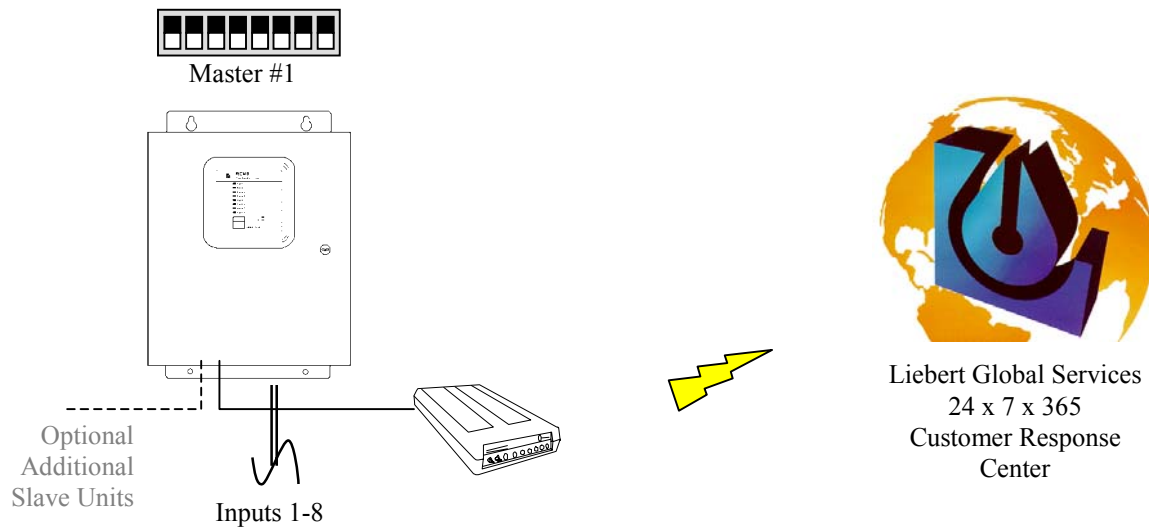
Local String with Optional PC/Terminal Interface and Optional SiteScan Interface



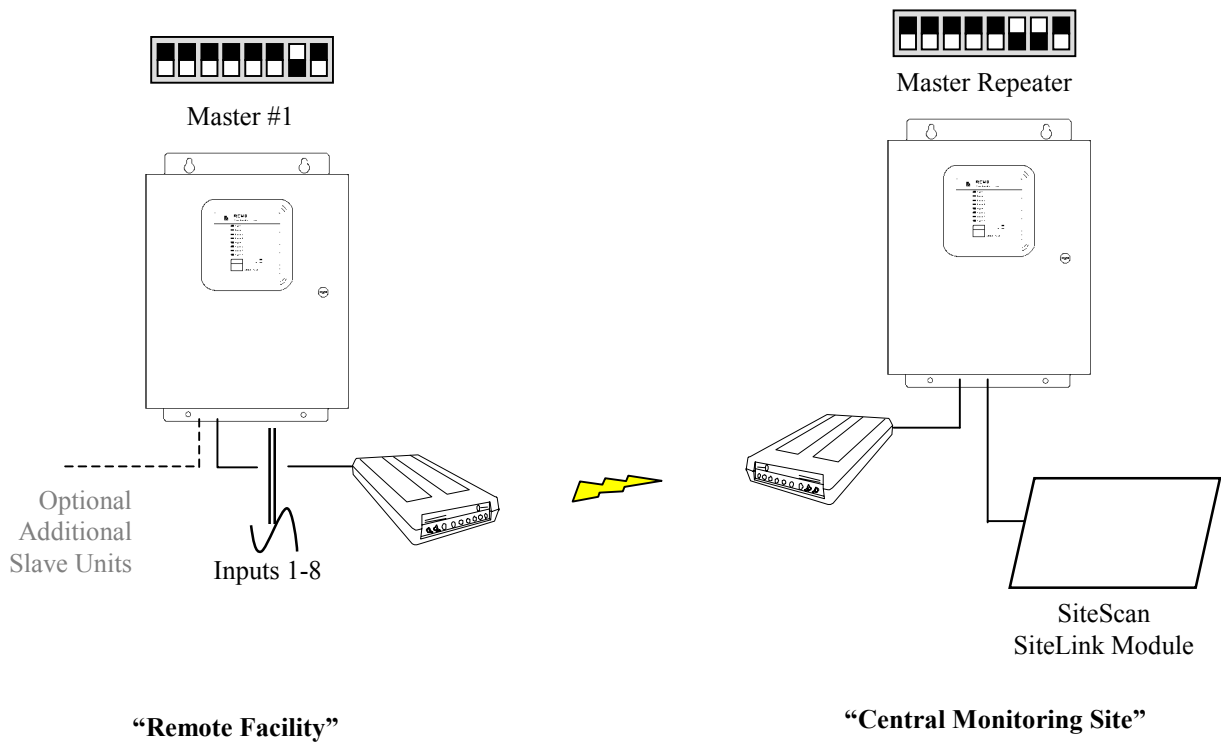
Local String with Master Repeater, and Optional Pager Dial-out



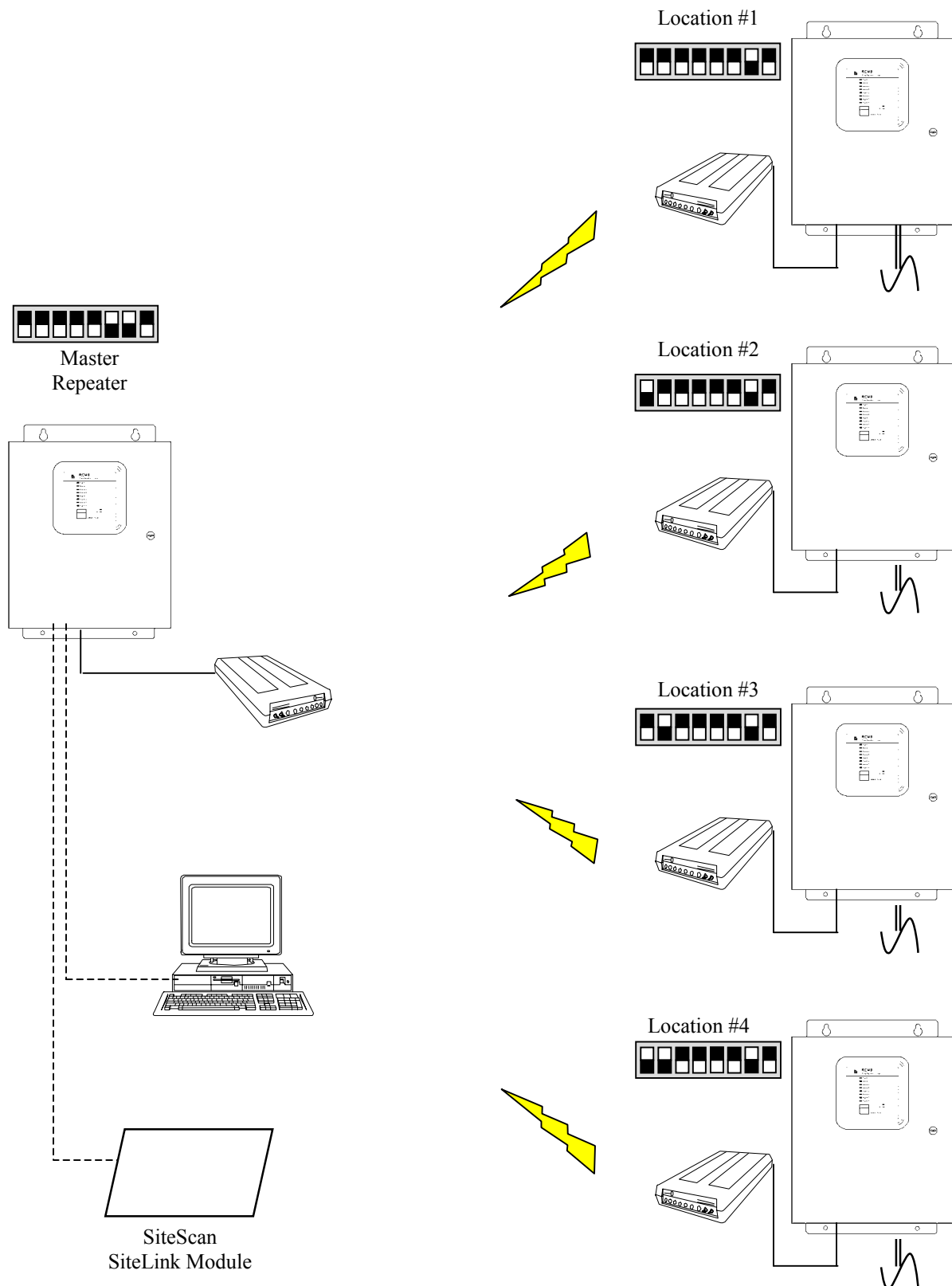
Liebert Global Services Remote Monitoring



SiteScan Remote Dial-Up Monitoring



Multiple Remote Sites Monitored from Central Location





RCM8CE & RCM8DO

Remote Contact Module

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